

1/2 009  
UNCLASSIFIED  
PROCESSING DATE--23OCT70  
TITLE--SYNTHESIS OF CARBOXYLIC ACID DERIVATIVES FROM CARBON MONOXIDE,  
DELFIN, AND ACYLATING COMPOUNDS UNDER ACID CATALYSIS CONDITIONS. 30.  
AUTHOR--(03)--YANG, Y.P., PUZITSKIY, K.V., YEIDUS, YA.T.  
COUNTRY OF INFO--USSR  
SOURCE--IZV. AKADE. NAUK SSSR, SER. KHIM. 1970, (2), 424-30  
DATE PUBLISHED-----70  
SUBJECT AREAS--CHEMISTRY  
TOPIC TAGS--ISOBUTYLENE, BUTANOL, CARBON MONOXIDE, CARBOXYLIC ACID,  
CHEMICAL SYNTHESIS, CATALYST  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--1997/0855  
CIRC ACCESSION NO--AP0119759  
STEP NO--UR/0062/70/000/002/0424/0430  
UNCLASSIFIED

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UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0119759

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. KINETIC DATA WERE SHOWN GRAPHICALLY FOR THE TITLE REACTION OF CARBONYLATION OF ISO, BUOH WITH VARIOUS PROPORTIONS OF ROH, BF SUB3 H SUB2 O AND CO PRESSURE AT 100DEGREES. THE MAIN PRODUCTS OF THE REACTION ARE ME SUB3 CO SUB2 H (I) AND ITS ISO, BU ESTER (II). THEIR YIELDS AND PROPORTIONS ARE AFFECTED BY TEMP. AND CATALYST CONC. CARBONYLATION OF ME SUB2 C:CH SUB2 GAVE MAINLY ME SUB3 CO SUB2 H. THE YIELD IN I IN THE 1ST REACTION SEQUENCE DECLINED FROM 70-80PERCENT WHEN THE PROPORTION OF ROH TO THE CATALYST WAS RAISED FROM 1.0 TO 2.0 OR 3.0 AND BECAME VERY LOW AT THE RATIO OF 2.0. THE YIELD OF II REACHED A MAX. (LARGER THAN 85PERCENT) AT 2:1 RATIO OF ROH TO CATALYST. THE YIELDS OF 2,2,4,4, TETRAMETHYLPENTACARBOXYLIC ACID AND TRIMERIC C SUB13 ACID ROSE MODERATELY ON INCREASING THE RATIO OF ME SUB2 C:CH SUB2 TO THE BF SUB3 CATALYST FROM 0.5 TO 1.0 AND TO 1.5. THE BEST YIELD OF II OF 89PERCENT WAS REACHED WITH ROH, CATALYST RATIO 2:1; THIS MADE POSSIBLE A CONTROL OF THE REACTION TO YIELD EITHER I OR II AS THE MAIN PRODUCT. A REACTION SCHEME WAS PROPOSED. FACILITY: INST. ORG. KHIM. IM. ZELINSKOGO, MOSCOW, USSR.

UNCLASSIFIED

USSR

YANGAYEV, I., Col, First Class Air Force Pilot

"The Flight Task and the Pilot's Discipline"

Moscow, Aviatziya i Kosmonavtika, No 9, Sep 71, pp 12-13

Translation: The success of a flight in a modern airplane depends to a large extent on the efficiency and faultlessness of the actions and the coordination of the work of the various ground service specialists. However, the responsibility of the pilot and of each crew member is especially great for observing the rules of flight service and for complying with the demands of the documents that regulate flight activities. And this is natural. The slightest lack of discipline in the air can lead to the failure of the flight task and may set the stage for a flight accident.

Senior lieutenant P. Vorozheykin was flying his plane along a course at a high altitude. It seemed that everything was favorable to a successful completion of the task: the flight was being performed by day, under simple meteorological conditions; there were no complications to be observed in the aerial conditions.

However, at the point where he was supposed to change course, Vorozheykin took the wrong course. Could the mistake be rectified? Yes, if he had tried to orient himself, using radiotechnical means to check the course. However,

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YANGAYEV, I., *Aviatsiya i Kosmonavtika*, No 9, Sep 71, pp 12-13

Vorozheykin did not do this. And subsequently he did not act in the best way either. He did not report what had happened to the command post, and did not give the signals necessary in this case. The safety of the flight was threatened.

Why did this happen? It turned out that the pilot had prepared himself irresponsibly for the flight: he did not work out the order of radio communication for the various stages, nor the order of action for particular situations, in particular for the case of a temporary loss of orientation. In this manner the deviation from rules on the ground led to serious violations in the air.

Of course, what had happened was the result of the pilot's lack of discipline. However, also those who did not check out, in accordance with the regulations, his preparedness for flight are also guilty in this instance. After all, this is also lack of discipline -- non-fulfillment of one's obligations with regard to official functions.

The increase of the military capabilities of presentday aviation technology and the complexity of the tasks confer upon the pilot a special responsibility with regard to preparing for flight and carrying out the flight task. The discipline and the self-control of the aviator are indicated.

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tors of his professional standard and his high moral and military qualities.

Many instances can be cited in which disciplined pilots overcame the most difficult situation and skillfully used their knowledge and skills to complete the flight successfully.

Somehow during the performance of the flight task the engine control rod of the plane piloted by Lieutenant S. Arapov got jammed. The pilot reported what had happened to the flight controller and then carried out the calculation for landing and safely landed the craft.

People might say that this incident is more an illustration of the high quality of the pilot's training, of his knowledge of the instructions and the rules for operating aircraft. What has it to do with his discipline? Indeed, it seems as if there were no direct connection.

However, practical experience shows that occasionally even the experienced aviator when he is faced with a difficult situation does not act with quite as much accuracy and assurance and deviates from the rules set down by the corresponding documents. Analysis of such instances confirms that the insecurity and inaccuracy of the pilot's actions are frequently the result of lack of discipline; not sufficiently serious attitude toward studying theory, inattention and lack of concentration during the period of preparation for flights and a formal attitude to training.

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There have also been instances when the pilot, having carried out the flight task with assurance, deviated on the ground somewhat from the requirements set down by the regulations. When this was pointed out to him, he claimed that the main thing for the pilot is the flight and that in this respect he was all right. Such a misconception is especially dangerous when the commander, satisfied with the flight achievements of his subordinate, "does not notice" the manifestations of lack of discipline or if he calls such a subordinate to account not sufficiently strictly and does not evaluate his actions in accordance with his principles.

One can hear of instances when a certain young aviator avers that he loves his profession, "cannot live without the sky;" that is occasionally there is something amiss with his discipline, then that happened in his case on the ground and not in the air. However, is it possible to divide discipline into ground discipline and air discipline? Of course not. Discipline is one whole and must be observed always, everywhere and in everything. Discipline must be inculcated continuously and persistently, utilizing for the purpose all forms and methods of educational work.

In strengthening discipline on the ground and in the air a leading role belongs to the commander who is in sole command. He is the one responsible for

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the training and the education of the flight personnel. And in everything relating to the observance of flight rules he must manifest unflagging exactingness. Great is the influence of the personal example set by the commander, the effect of his prestige as a flyer, of his knowledge and unconditional adherence to flight regulations. However, it can also happen that some commanders are trying to justify violations in flight operations by the urgency to fulfill the military training plan. As if it were necessary to prove what harm is caused by such laxity to the education of the personnel and to the strengthening of military discipline. People may say that such instances are isolated ones. That is true; however, they should not occur, either.

The flight commander plays an especially great role in developing the aviators' sense of personal responsibility for the success of each flight and their habit of observing closely the requirements of the documents that define the order and the rules governing flight operations. Being the immediate teacher of the aviators under his command, the commander participates together with the aviators in the preparation and carrying out of flight tasks; this circumstance provides him with extensive opportunities for studying the individual qualities of his pupils and for exerting an influence over them.

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YANAYEV, I., *Aviatsiya i Kosmonavtika*, No 9, Sep 71, pp 12-13

The flight commander educates first of all by his personal example, by accurately obeying the precepts and the requirements of the instructions and other documents that regulate flight work. Analyzing at the discussion of the flights the actions of the aviators in the air, the flight commander uses objective control data and evaluates the fulfillment of each flight task in accordance with the results revealed by these data.

Instructive examples of exemplary fulfillment of flight tasks and of intelligent action under difficult circumstances and in special situations must be currently told to the entire flight personnel and be widely publicized.

The constant combat readiness of the aviator is inseparable from his discipline. At the same time, the exemplary fulfillment of the flight task and the observance of the requirements presented by the corresponding instructions and orders presuppose initiative, militant activity, and a constant striving to improve one's flight training. In fulfilling the flight tasks, the aviator must persistently keep mastering the equipment and weapons entrusted to him, analyze the situation from every angle, and make a decision that will ensure the completion of the task without fail.

The development of military equipment and weapons increases man's role in battle. High ideals, mastery, firm military discipline, sound moral and

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YANGAYEV, I., *Aviatsiya i Kosmonavtika*, No 9, Sep 71, pp 12-13

psychological qualities, a personal sense of responsibility of each military aviator for his own military training and for the combat readiness of the subunit (podrazdeleniye) as a whole -- all these are important criteria for the successful fulfillment of important tasks.

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USSR

UDC 628.35

KARYUKHINA, T. A., KLEYN, S. A., SHANGINA, G. A., YANCOLENKO, I. V., and  
KRZHAPOL'SKAYA, L. Z., Moscow Construction Engineering Institute imeni V. V.  
Kuybyshev

"Biological Methods of Purifying Sewage From Chemical and Pharmaceutical  
Plants"

Moscow, Khimiko-Farmatsevticheskiy Zhurnal, No 11, 1971, pp 30-35

Abstract: The 1960-1969 literature on the subject is reviewed and the most effective methods discussed. In some instances, when the sewage contains no toxic compounds, it may be used directly for irrigation of fields. In most cases, a combined method yields the best results. Sewage containing large amounts of hormones must first be treated anaerobically. It is then aerated (waterfalls, air turbines, or other systems) for several hours up to 2 weeks, depending on what substances it contains. This aeration reduces the biological oxygen requirement by 90-98%. Neutralizers are added and the sewage is stirred until its pH becomes close to 7 (initial pH ranges from 2 to 10). Next, the sewage is kept standing in reservoirs. Harmless bacteria may be grown in it and later precipitated with chlorine. After adequate sedimentation of suspensoids, the sewage is run through sand and gravel filters,

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KARYUKHINA, T. A., et al., Khimiko-Farmatsevticheskiy Zhurnal, No 11, 1971, pp 30-35

floating matter and deposits are collected, burned, and used as fertilizers or admixture to feeds. This treatment removes up to 95% of suspensoids. The filtrate may be drained into rivers and lakes, or it may be stored in reservoirs and be utilized during summer. Theoretical data indicate that practically any sewage can be purified adequately at reasonable cost.

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USSR

UDC 535.853.4:535.421

KOMISSARUK, V. A., YANICHKIN, V. I.

"Diffraction Interferometer with Arbitrary Band Direction"

Optiko-mekhanicheskaya Promyshlennost', No 11, Nov 72, pp 29-32.

Abstract: A grid-type interferometer containing an additional astigmatic optical system in the collimator is studied. The additional system allows the interference bands to be oriented arbitrarily in relationship to the movement of the wave surfaces. When the bands are parallel to the movement, they are practically achromatic. An astigmatic system consisting, for example, of a plano-convex spherical and a plano-concave cylindrical lens allows the pair of grids used in ordinary diffraction interferometer to be used in the device.

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1/2 032  
UNCLASSIFIED  
TITLE--POLARIZATION SHIFT INTERFEROMETER WITH RANDOM BAND DIRECTION -U-  
AUTHOR--(02)-KOMISSARUK, V.A., YANICHKIN, V.I.  
COUNTRY OF INFO--USSR  
SOURCE--LENINGRAD, OPTIKO MEKHANICHESKAYA PROMYSHLENNOST', NO 1, 1970, PP  
29-31  
DATE PUBLISHED-----70  
SUBJECT AREAS--PHYSICS  
TOPIC TAGS--INTERFEROMETER, LIGHT SOURCE, COHERENT LIGHT, LIGHT  
POLARIZATION  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAHE--1999/1344  
CIRC ACCESSION NO--AP0123302  
STEP NO--UR/0237/70/000/001/0029/0031  
UNCLASSIFIED

2/2 032

CIRC ACCESSION NO--AP0123302  
ABSTRACT/EXTRACT--(U) GP-0-

UNCLASSIFIED

PROCESSING DATE--20NOV70

ABSTRACT. A SHIFT INTERFEROMETER IS DESCRIBED IN WHICH COHERENT LIGHT SOURCES ARE FORMED WITH THE AID OF TWO WOLLASTON PRISMS DEVELOPED WITH RESPECT TO EACH OTHER AT 50 DEGREES. THE BANDS IN THIS INTERFEROMETER CAN BE ORIENTED ARBITRARILY WITH RESPECT TO THE SHIFT. AN INTERFEROGRAM IS GIVEN.

UNCLASSIFIED

USSR

UDC 546.185

YANIK, Boleslav, and ZHESHUTKO, Vladimir, Medical Academy, Krakow, Poland

"Studies of Cyclotriphosphazatriene Derivatives. III. Reaction of Phosphazatriene Chlorides With Thiourea and Ammonium Thiocyanate"

Leningrad, Zhurnal Obshchey Khimii, Vol 42(103), No 2, Feb 72, pp 271-273

Abstract: Tri- and tetrametathio-phosphiminic acids were synthesized by reacting hexa- and octachlorophosphazatriene with thiourea and ammonium thiocyanate. Trimetathio-phosphiminic acid was reacted with Ag (I), Hg (II) and Fe (III) ions to give the following salts (formulas based on percent metal concentration):  $Ag_3(PN)_3S_6H_3$ ,  $(PN)_3S_6H_3Hg_3H_3S_6(PN)_3$  and  $(PN)_3S_6H_3Fe$ . The acids were studied by IR-spectroscopy on the UR-10 spectrophotometer in arsenic sulfide cells with a 0.02 cm layer at 3200-650  $cm^{-1}$ . A lithium fluoride prism was used at 3200-2000  $cm^{-1}$ , and a sodium chloride prism was used at 2000-650  $cm^{-1}$ . Absorption characteristic of the six-membered P=N ring was observed in the spectra for trimetathio-phosphiminic acid, while a maximum typical of the eight-membered ring was observed for tetrametathio-phosphiminic acid. A weak band characteristic of the -SH group was also observed. The maxima have the same position as in the spectra of acids synthesized by reacting the trimer and tetramer with hydrogen sulfide.

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USSR .

UDC 546.185

YANIK, B., and ZHESHUTKO, V., Chair of Inorganic and Analytical Chemistry,  
Medical Academy Cracow

"Study of the Derivatives of Cyclotriphosphazatrienes. IV. Reaction of  
Phosphazatriene Chlorides With Formamide and Thioformamide"

Leningrad, Zhurnal Obshchey Khimii, Vol 43(105), No 2, Feb 73, pp 274-276

Abstract: A solution of 2.7 g formamide in 50 ml ether is mixed with 3.47 g  
of chlorophosphazatriene in 50 ml ether. The mixture is then refluxed for  
4 hrs, the product -- trimetaphosphiminic acid -- precipitates in the  
process. A similar reaction could be carried out with tri- and tetra-  
chlorophosphazatriene(tetraene) and thioformamide in pyridine to yield  
tri- and tetrametathio phosphiminic acid.

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### Conferences

#### USSR

YANIK-CHAKHOR, M., Institute of Physical Chemistry, Polish Academy of Sciences, Warsaw

#### "International Colloquium on Pitting Corrosion of Metals"

Moscow, Zashchita Metallov, Vol 7, No 2, Mar-Apr 71, pp 218-219

Abstract: The colloquium of the CEMA Member Countries on pitting corrosion of metals was held 5-9 October 1970 at Yashovets, Poland. Seventy-seven specialists from Hungary, East Germany, Poland, Rumania, the USSR, and Szechoslovakia took part in the colloquium. L. I. Freyman, et al. indicated that the Potential-static potential of pitting formation is much more positive than the potential of pitting corrosion determined galvanostatically. Professor O. Radovich noted the relationship between the tendency of a metal toward pitting corrosion and the degree of hydration of the passivating oxide influencing the relationship of ionic and covalent bonds in it. The influence of alloying with V, Si, Mo, and Re on the tendency toward repassivation of pitting corrosion was described by G. P. Chernova. Other subjects

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YANIK-CHAKHOR, M... et al., Zashchita Metallov, Vol 7, No 2,  
Mar-Apr 71, pp 218-129

discussed included pitting corrosion of iron caused by  $\text{SO}_4^{2-}$  ions;  
the kinetics of the formation and development of pitting; the  
influence of heat treatment of chrome-nickel steel on its tendency  
toward pitting corrosion in chloride solutions; and the influence  
of nonmetallic inclusions on the formation of pitting seeds.

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USSR

UDC: 621.396.6.049.75(088.8)

TSYRENSHCHIKOV, N. N., YANIN, A. P., GORELIK, V. T.

"A Device for Tinning and Solder-Filling the Contact Channels of Ceramic Circuit Boards"

USSR Author's Certificate No 280592, filed 13 May 69, published 17 Nov 70 (from RZh-Radiotekhnika, No 6, Jun 71, Abstract No 6V287 P)

Translation: A device is proposed for tinning and soldering the contact channels in circuit boards. The device contains a reservoir filled with molten solder covered with a layer of protective liquid, and a conveyor equipped with clamps located above the reservoir. The circuit board is held by the clamps. To increase the productivity of the device, fastened on a rotating lever in the reservoir is a cylindrical tank made from a material which is resistant to wetting by solder and has triangular slots along the upper edge.

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USSR

UDC 547.834.4:543.51

YERMAKOV, A. I., SHEYNKER, Yu. N., MIKHLINA, YE. YE., YANINA, A. D.,  
YAKHONTOV, L. N., and KOSTYANOVSKIY, R. G., All-Union Scientific Research  
Chemico-Pharmaceutical Institute imeni S. Ordzhonikidze, Moscow

"Mass Spectra of Some 3-Substituted Benzo/b/quinuclidines. III"

Riga, Khimiya Geterotsiklicheskikh Soyedineniy, No 6, Jun 72, pp 825-832

Abstract: The mass spectra of 3-methoxycarbonyl-, 3-ethoxycarbonyl-, 3-(2-dimethylaminoethoxy)carbonyl-, 3-amino-, 3-hydroxymethyl-, 3-chloro-3-methoxycarbonyl-, 3-chloro-3-ethoxycarbonyl-, and 3-chloro-3-cyanobenzo-/b/quinuclidine were studied. The results indicated that fragmentation of these compounds by electron impact took place over the formation of an open molecular ion that generally resulted upon cleavage of the bridge group containing the substituent or substituents. The C-Cl group had the weakest bond in the molecular ions derived from the disubstituted compounds - hence, C<sup>0</sup> readily split off from the Cl-Ch-X group (X=COOR, CN) with the formation of a =CH-X group.

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USSR

UDC 547.834.4+541.634

MIKHLINA, YE. YE., YANINA, A. D., ALEKSEYEVA, L. M., TURCHIN, K. F., SHEYNKER, YU. N., YAKHONTOV, L. N., DYUK, R. F., RICHARD, A. YA., and KATRITSKIY, A. R., All-Union Scientific Research Pharmaceutical Chemical Institute imeni S. Ordzhonikidze, Moscow and Chemistry Department, University of East Anglia at Norwich, Great Britain

"Reaction of Benzo [b]quinuclidine with Electrophilic Reagents"

Riga, Khimiya Geterotsiklicheskikh Soyedineniy, Academy of Sciences Latvian SSR, No 3, 1971, pp 385-388

Abstract: Electrophilic substitution of benzo [b] quinuclidine (I) was studied: bromination, nitration, and sulfochlorination. These results are closely related to the absence of p- $\pi$  electron interaction in I. When I is brominated in several different solvents (acetic acid, chloroform) at 0, 20, and 60° (with or without catalysts), only the perbromide of I and a molecular complex of I with bromine were obtained. The absence of the p- $\pi$  mesomeric effect in I is shown by its pK. In contrast to bromination, nitration and sulfochlorination of I form products of electrophilic substitution. When I is treated with a nitrating mixture at temperatures from -4 to -7°, mononitrobenzo [b] quinuclidine is formed. When I is treated with chlorosulfonic acid, first at 0° and then at 50°, benzo [b]quinuclidine-sulfonyl chloride is formed.

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USSR

UDC 581.143

CHAYLAKHYAN, M. KH., YEFOROVA, T. A., and YANINA, L. I., Institute of Plant Physiology imeni Timiryazev, USSR Academy of Sciences

"The Effect of Darkness and Retardants on Growth and Blooming of Short-Day Plants"

Doklady Akademii Nauk Armyanskoy SSR, Vol 51, No 4, 1970, pp 244-249

Abstract: Short-day plants exhibit the characteristic feature that during short days their blooming is stimulated while their growth is inhibited. To investigate the correlation between these two properties, one set of short-day plants was exposed to darkness; a second set was treated with growth retardants; a third set was exposed to darkness and treated with retardants; and a fourth set served as control. All sets included specimens of *Perilla nankinensis*, *Xanthium pennsylvanicum*, *Bidens maximovicziana*, and *Cannabis sativa*, and they were all treated according to a definite schedule. Prolonged exposure to darkness, followed by induction with short days, accelerated blooming in *Perilla*, *Xanthium*, and *Bidens*, but not in *Cannabis*; and it inhibited growth of *Xanthium*, *Bidens*, and *Cannabis*, but not of *Perilla*. Retardants suppressed the growth of all four kinds of plants, but had no effect 1/2

USSR

CHAYLAKHYAN, M. KH., et al., Doklady Akademii Nauk Armyanskoy SSR, Vol 51, No 4, 1970, pp 244-249

on their blooming. Thus, there is no direct correlation between growth and blooming processes in short-day plants. Inhibition of growth and stimulation of blooming coincide after exposure to darkness but do not coincide after treatment with retardants. In *Perilla*, darkness has no effect on growth but stimulates blooming; in *Cannabis*, darkness and retardants inhibit growth but have no effect on blooming. Apparently, retardants are antagonists of natural gibberellins which do not suppress blooming, while darkness promotes formation of metabolites required for blooming.

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USSR

UDC 576.851.555.097.29

KULAK, V. G., GOLSHMID, V. K., NENASHEV, V. P., GLUSHKOVA, A. I. and YANISHEVSKAYA, M. N., Moscow Institute of Vaccines and Sera imeni Mechnikov

"Study of the Fractional Composition of *Cl. oedematiens* Toxins and Toxoids.  
Report I. Fractionation of Toxins and Toxoids by Gel Filtration"

Moscow, Zhurnal Mikrobiologii, Epidemiologii i Immanobiologii, Vol 47, No 6,  
Jun 70, pp 112-115

Abstract: *Cl. oedematiens* toxin has a mosaic structure. It contains lethal necrotic factors and hemolysin. The fractional composition of a toxin nutrient medium on Sefadex G-100 gel, including crude and purified *Cl. oedematiens* toxoids, type A, was studied. The toxins were separated into three fractions, differing from one another in their biological and enzymatic activity. The first fraction contained the lethal dermonecrotic and antitoxin-binding activity; the second fraction contained the lecithinase and hemolytic activity; and the third fraction contained amylase. Two peaks were observed in the fraction of crude toxoid and toxin. All of the antitoxin-binding activity of the toxoids was contained in the high-molecular-weight proteins eluted in the first peak. The significance of the different components in *Cl. oedematiens* immunity requires further study.

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1/2 023 UNCLASSIFIED PROCESSING DATE--27NOV70  
TITLE--A STUDY OF THE FRACTIONAL COMPOSITION OF CL OEDEMATIENS TOXINS AND  
TOXOIDS -U-  
AUTHOR--(05)-KULAK, V.G., GOLSHMID, V.K., NEMASHEV, V.P., GLUSHKOVA, A.I.,  
YANISHEVSKAYA, M.N.  
COUNTRY OF INFO--USSR  
SOURCE--ZHURNAL MIKROBIOLOGII, EPIDEMIOLOGII I IMMUNOBIOLOGII, 1970, NR 6,  
PP 112-115  
DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--CLOSTRIDIUM, BACTERIAL TOXIN, TOXOID, FRACTIONATION, GEL,  
FILTRATION, ENZYME ACTIVITY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--3001/0394

STEP NO--UR/0016/70/000/006/0112/0115

CIRC ACCESSION NO--AP0126149

UNCLASSIFIED

2/2 023 UNCLASSIFIED PROCESSING DATE--27NOV70  
CIRC ACCESSION NO--AP0126149  
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. BY FILTRATION ON GEL SEFADEX G-100  
CL. OEDEMATIENS TOXINS TYPE A WERE DIVIDED INTO THREE FRACTIONS  
DIFFERENTIATED BY TOXICITY AND FERMENTING ACTIVITY. THE FIRST FRACTION  
INCLUDED THE LETAHL DERMONECROTIC AND ANTITOXIN BINDING ACTIVITY, THE  
SECOND LECITHINASE AND HEMOLYTIC ACTIVITY, AND THE THIRD AMYLASE. GEL  
FILTRATION OF OEDEMATIENS TOXOIDS PROVED TO INCREASE THEIR SPECIFIC  
ACTIVITY. FACILITY: MOSKOVSKIY INSTITUT VAKTSIN I SYVOROTOK IM  
MECHNIKOVA.

USSR

UDC: 621.396.666:621.375.421(088.8)

YANISHEVSKIY, A. A.

"Amplifier With Controllable and Reversible Amplification Coefficient"

Avt. sv. SSSR (Author's Certificate USSR) Class 21a<sup>4</sup>, 29/03, (H 03 g 3/30) No. 275160, Application 7.09.68, Publication 15.10.70  
(from RZh-Radiotekhnika, No. 3, March 71, Abstract No. 3D176P)

Translation: An amplifier is proposed with a controllable and reversible amplification coefficient containing two transistors, with the load and the source of the controlling voltage connected to their collectors. To obtain a broad passband with simultaneous control and reversible gain, the base of the first transistor and the emitter of the second are connected with the input terminal through dividing capacitors, the emitter of the first and the base of the second are connected through coupling capacitors to the common point of the amplifier, while the source of the controlling voltage is connected to the bases of the transistors through decoupling resistors.

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USSR

UDC: 621.372.852(088.8)

YANISHEVSKIY, A. A.

"A Band Filter"

USSR Author's Certificate No 250333, filed 9 Feb 67, published 20 Jan 70 (from  
RZh-Radiotekhnika, No 7, Jul 70, Abstract No 7D52 P)

Translation: A filter is proposed which contains two tank circuits and a shield with slits. To achieve low coupling inductance and provide a high degree of shielding, the element of the shield located between the slits is conductively connected to each of the tank circuits. Resumé.

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1/2 007 UNCLASSIFIED PROCESSING DATE--27NOV70  
TITLE--EFFECTIVENESS OF LIQUID COMPLEX FERTILIZERS BASED ON  
SUPERPHOSPHORIC ACID ON SOO PODZOLIC SOIL -U-  
AUTHOR-(03)-YANISHEVSKIY, F.V., PROKOSHEVA, M.A., NOVIKOVA, G.V.  
COUNTRY OF INFO--USSR  
SOURCE--AGROKHIMIYA 1970, (2), 3-14  
DATE PUBLISHED-----70  
SUBJECT AREAS--AGRICULTURE  
TOPIC TAGS--SOIL CHEMISTRY, SOIL STRUCTURE, LIQUID FERTILIZER, WHEAT,  
CEREAL CROP, LEGUME CROP, PHOSPHORUS FERTILIZER, UREA  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--3001/1892 STEP NO--UR/0485/70/000/002/0003/0014  
CIRC ACCESSION NO--AP0127293  
UNCLASSIFIED

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UNCLASSIFIED

PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0127293

ABSTRACT/EXTRACT--(U) GP-O- ABSTRACT. THE TITLE FERTILIZERS IN LIQ. OR SOLID FORM WITH VARYING COMPS. (N:P SUB2 O SUB5:X SUB2 O EQUALS 1:1:, 10:34:0, OR 11:37:0) ON WHEAT, OATS, AND BEANS IN POT EXPTS. WERE EQUALLY EFFECTIVE AS MIXTS. OF SOLID FERTILIZERS BASED ON AMMONIUM ORTHOPHOSPHATE AS P SOURCE. IN FIELD EXPTS. ON ACID LIGHT CLAY SOD PODZOLS WITH POTATOES THE POLYPHOSPHATE IN EITHER FORM NEARLY EQUALLED AMMONIUM ORTHOPHOSPHATE OR MIXTS. OF UREA PLUS DOUBLE SUPERPHOSPHATE. FROM THE TREATED SOIL CONSIDERABLE POLYPHOSPHATE WAS EXTG. BY CONTINUOUS FRACTIONAL EXTN. WITH 0.01N HCL. FACILITY: RAMENSK. AGROKHM. OPYT. STA., RAMENSKOE, USSR.

UNCLASSIFIED

USSR

UDC 621.357.7:669.776(088.8)

YANITSKIY, I. V., PATSAUSKAS, E. I., RISELIS, S. P.

"Method of Electrochemical Deposition of a Selenium Alloy"

USSR Author's Certificate No 314818, filed 28 Mar 70, published 2 Nov 71 (from RZh-Khimiya, No 12, Jun 72, Abstract No 12L335P)

Translation: A procedure has been patented for electrochemical deposition of a Se alloy from an electrolyte containing selenic acid. The procedure is distinguished by the fact that in order to obtain a uniform film of a Se-Bi alloy, Bi nitrate and  $\text{HNO}_3$  are introduced into the electrolyte, and the process takes place at room temperature,  $D_c$  1-20  $\text{ma/cm}^2$ . The electrolyte contains (in g/liter):  $\text{H}_2\text{SeO}_3$  0.5-15,  $\text{Bi}(\text{NO}_3)_3$  1-53,  $\text{HNO}_3$  188-189. Se-Bi alloy with semiconductor properties is obtained by the proposed procedure.

1/1

1/3 013 UNCLASSIFIED PROCESSING DATE--23OCT70  
TITLE--SOLUBILITY AND CRYSTALLIZATION IN A SODIUM SELENATE SODIUM, -  
SELENITE WATER SYSTEM -U-  
AUTHOR-(02)-YANITSKIY, I.V., PATKAUSKAS, R.  
COUNTRY OF INFO--USSR  
SOURCE--ZH. PRIKL. KHIM. (LENINGRAD) 1970, 43(3), 522-7  
DATE PUBLISHED-----70  
SUBJECT AREAS--CHEMISTRY, PHYSICS  
TOPIC TAGS--SOLUBILITY, SODIUM COMPOUND, SELENITE, CRYSTALLIZATION, WATER,  
ISOTHERM  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--1996/1946 STEP NO--UR/U080/70/043/003/0522/0527  
CIRC ACCESSION NO--AP0118908  
UNCLASSIFIED

2/3 013

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0118908

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. SOLY. ISOTHERMS OF THE NA SUB2 SEO SUB4 -NA SUB2 SEO SUB3 SYSTEM AT 0 AND 20DEGREES SHOWED 2 BRANCHES CORRESPONDING TO NA SUB2 SEO SUB4 .10H SUB2 O (I) AND NA SUB2 SEO SUB4 .10H SUB2O (II) AND NA SUB2 SEO SUB3 .5H SUB2 O (II) AS THE EQUIL. SOLID PHASES. THEIR POINTS OF INTERSECTION ARE ISOTHERMAL INVARIANT POINTS WITH COMPN. NA SUB2 SEO SUB3 41.8 PLUS NA SUB2 SEO SUB4 2.80PERCENT AT 0DEGREES AND NA SUB2 SEO SUB3 32.95 PLUS NA SUB2 SEO SUB4 16.25PERCENT AT 20DEGREES. AT 25 AND 35DEGREES 3 BRANCHES WERE OBSERVED. SOLID I LOST ITS CRYSTN. H SUB2 O AT SELENITE CONTENTS OF 24.46 AND 7.34PERCENT AT 25 AND 30DEGREES, RESP., SO THAT I, I PLUS NA SUB2 SEO SUB4, NA SUB2 SEO SUB4 PLUS II, AND II WERE THE EQUIL. SOLID PHASES DEPENDING ON THE COMPN. OF THE SYSTEM. ISOTHERMS AT 40 AND 60DEGREES CORRESPONDED TO ANHYD. NA SUB2 SEO SUB3 AND NA SUB2 SEO SUB4 ONLY. THE RESULTS ARE DISCUSSED FROM THE VIEWPOINT OF SEPG. BOTH SALTS DURING THE ELECTROLYTIC PRODN. OF SELENATE FROM SELENITE. THE CHOICE OF CRYSTN. TEMP. DEPENDED ON WHETHER I OR NA SUB2 SEO SUB4 IS TO BE OBTAINED. IN BOTH CASES MUTUAL SALTING OUT OF BOTH SALTS CAN BE EXPLOITED. PRODUCTION OF I IS RECOMMENDED AS MORE SUITABLE. FROM SATD. SOLN. OF SELENATE CONTG. 5-7PERCENT SELENITE AT 30DEGREES, IS LESS THAN 70PERCENT SELENATE CAN BE OBTAINED AS I BY COOLING THE SYSTEM DOWN TO 0DEGREES. BETTER YIELDS WERE OBTAINED BY USING ISOTHERMAL EVAPN. AT 25DEGREES UNTIL THE ISOTHERMAL INVARIANT POINT WAS REACHED, AND THEN BY COOLING TO 0DEGREES. AFTER WASHING THE CRYSTALS WITH ICE COLD H SUB2 O AND RECRYSTN., I WITH 99-99.9PERCENT PURITY WAS OBTAINED.

UNCLASSIFIED

3/3 013  
CIRC ACCESSION NO--AP0118908  
ABSTRACT/EXTRACT--FACILITY:

UNCLASSIFIED

PROCESSING DATE--23OCT70

KAUNAS. POLITEKH. INST., KAUNAS, USSR.

UNCLASSIFIED

USSR

YANITSKIY, V. Ye.

"Use of a Stochastic Poisson Process for Calculation of Collision Relaxation of a Non-Equilibrium Gas"

Zh. vychisl. mat. i mat. fiz. [Journal of Computer Mathematics and Mathematical Physics], 1972, 13, No 2, pp 505-510 (Translated from Referativnyy Zhurnal - Kibernetika, No 8, 1973, Abstract No 8 V221 by the author)

Translation: Elastic collisions of molecules of a rarefied gas are studied from the standpoint of the theory of stochastic processes. Methods are suggested for the calculation of relaxation of a non-equilibrium gas, based on modeling of stable stochastic processes. Based on the results produced, a method of calculation of collisions suggested by Berd is analyzed, and the limits of its applicability are established.

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USSR

UDC 621.391.2

ALEKSEYEV, V. A., ANTONETS, M. A., GATELYUK, E. D., ZHIVORA, P. S., IVANOV, B. S., KRYUKOV, A. YE., TIKHONOV, YU. A., YANKAVTSEV, M. V.

"Interference Correlometer using a Digital Computer"

Moscow, Radiotekhnika i elektronika, Vol XVII, No 2, 1972, pp 332-339

**Abstract:** Specific problems connected with the construction of a correlation detection system in which the receivers are located at a distance excluding the possibility of direct coupling with the correlator are discussed. The problems of constructing the interference correlometer with recording of the investigated signals at each point on magnetic tapes and calculation of the correlation function on a digital computer are considered. The peculiarities of calculating the correlation function connected with the application of superheterodyne receivers are noted, and results are presented from laboratory checking of the system. Satisfactory coincidence of the experimental and theoretical results was obtained. For  $10 \text{ kilohertz} < F < 75 \text{ kilohertz}$  and  $T = 30 \text{ seconds}$ , the correlation gain of the developed system  $Q \approx 1000$ . The investigated system can also be used for autocorrelation and cross correlation analysis of processes represented by electric signals and for spectral analysis of signals represented in analog form for multilevel quantization at a digital computer input.

1/1

USSR

UDC 543.422.23:546.1'118

NURETDINOV, I. A., NEGREBETSKIY, V. V., YANKILEVICH, A. Z., KESSENIKH, A. V.,  
RIKONOROVA, L. K., and LOGINOVA, E. I., Institute of Organic and Physical  
Chemistry imeni A. Ye. Arbuzov, Academy of Sciences USSR, and Institute of  
Organic Chemistry imeni N. D. Zel'nskiy, Academy of Sciences USSR

"NMR- $H^1$ , NMR- $P^{31}$  and INDOR- $H^1$  -  $\{P^{31}\}$  Spectra of Compounds Containing  
-P(X) - N - P(Y)- Group"

$CH_3$

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, no 11, Nov 71,  
pp 2589-2591

Abstract: For purposes of studying the spin-spin interaction in compounds with  
fragments of the type  $=P(X) - N - P(X)=$  and  $=P(X) - N - P(Y)=$ , the authors stud-  
ied the NMR- $H^1$ , NMR- $P^{31}$  and INDOR- $H^1 - \{P^{31}\}$  spectra of the following compounds:

$(CH_3O)_2P_I(O)N(CH_3)P_{II}(OCH_3)_2$ ,  $(CH_3O)_2P_I(O)N(CH_3)P_{II}(Se)(OCH_3)_2$ ,  $(CH_3O)_2P_I(O)N-$   
 $(CH_3)P_{II}(Se)(OC_4H_9-i)_2$ ,  $(CH_3O)_2P_I(S)N(CH_3)P_{II}(Se) \begin{matrix} OC_3H_7-i \\ N(C_2H_5)_2 \end{matrix}$ . The values and  
1/2

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USSR

NURETDINOV, O. A., et al., Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No 11, Nov 71, pp 2589-2591

signs of the constants  $^2J_{pp}$ ,  $^3J_{PNCH}$  were determined. The series of compounds studied display a decrease in the value of  $^2J_{pp}$  with a change in its sign.

2/2

USSR

BAPTIZMANSKIY, V. I., BAKEMAN, N., DMITRIYEV, Yu. V., PROSVIRIN, K. S.,  
SHEVELEV, V. V., YANKELEVICH, Ya. P., PODGORODETSKIY, A. A.

"The Problem of the Use of Coagulators During Deoxidation of Steel by Aluminum"  
Moscow, Izv. Vuzov, Chernaya Metallurgiya, No 2, 1971, p 51-55.

Abstract: Analysis of the hydrodynamic and thermodynamic factors shows the possibility of using secondary large particles as coagulators for the products of deoxidization of steel with aluminum. The introduction of crushed lime, feldspar, and aluminum to the center mass during deoxidization in the process of siphon pouring of seven-ton ingots of type 3 kp steel was tested. Studies of rolled products produced from these ingots confirmed experimentally the possibility of reducing the level of contamination of the steel with stable nonmetallic inclusions by combined introduction of deoxidizers and coagulators.

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USSR

UDC 616.988(RS)-092.9-097

DREZYIN, R. S., VYSHNEVETSKAYA, L. O., BAGDAMYAN, YE. YE., YANKEVICH, O. D.,  
TARASOVA, L. B., and KLENOVA, A. V., Institute of Virology Virusologii, No 6,  
Nov/Dec 71, pp 670-676

Abstract: Cotton rats aged  $1\frac{1}{2}$ -2 weeks were experimentally infected with the Long strain of RS virus through intranasal inoculation, and the progress of the disease was investigated with three methods, yielding corresponding results. The virus and the specific antigen (anti-RS FITC-globulin of rabbits) were detected 24 hours after inoculation. The intensity of fluorescence, the percentage of cells containing the antigen, and the virus titer in the epithelium of the nose, trachea, bronchi, and alveoli reached a maximum in 3 to 5 days, at which time maximum pathomorphological changes were also observed in the epithelium of the trachea, bronchi, and bronchioles. The intensity of the infectious process declined on the 7th day, and neither the specific antigen, nor the virus, nor the pathomorphological changes in the epithelium of the respiratory pathways were found on the 14th day.

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USSR

UDC 546.776'21'131:04+546.786'21'131.04

PODZOLKO, Yu. G., KUZNETSOVA, A. A., YANKINA, L. F., and BUSLAYEV, Yu. A.,  
Institute of General and Inorganic Chemistry imeni N. S. Kurnakov, Academy  
of Sciences USSR

"Interaction of the Oxochlorides of Molybdenum (VI) and Tungsten (VI) with  
Methylphosphonic Acid"

Moscow, Zhurnal Neorganicheskoy Khimii, Vol 18, No 5, May 73, pp 1255-1259

Abstract: By the interaction of  $\text{MoO}_2\text{Cl}_2$  and  $\text{WO}_2\text{Cl}_2$  with methylphosphonic acid  $\text{MeP}(\text{O})(\text{OH})_2$ , compounds with the composition  $\text{MO}_2\text{ClOP}(\text{O})(\text{Me})\text{OH}$  (I),  $\text{MO}_2/\text{OP}(\text{O})(\text{Me})\text{OH}/_2$  (II), and  $\text{MO}_2\text{O}_2\text{P}(\text{O})(\text{Me})$  (III) were prepared, where M = Mo, W.  
Pyrolysis of the acidic salts II at  $200^\circ$  led to the pyrosalts  $\text{MO}_2/\text{OP}(\text{O})(\text{Me})/_2\text{O}$  (IV). IR spectroscopy indicated that II and III were polymers with .... MOMOM .... linkages, similarly to the initial oxochlorides, while IV contained isolated MO groups and also POP groups that were absent in II and III. III and IV apparently contained phosphonate links. Structural formulas for II, III, and IV are proposed (figure).

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Inorganic Compounds

USSR

UDC 546.776-386.03

LARIN, G. M., KUZNETSOVA, A. A., YANKINA, L. F., and BUSLAYEV, YU. A.,  
Institute of General and Inorganic Chemistry imeni N. S. Kurnakov, Academy  
of Sciences USSR

"Structural Studies of the Oxomolybdenum (V) Phosphinate Complexes by the  
EPR Method"

Moscow, Zhurnal Neorganicheskoy Khimii, Vol 18, No 7, Jul 73, pp 1819-1823

Abstract: The structures of oxomolybdenum (V) phosphinate complexes  $\text{MoO}(\text{DPP})_3$ ,  $\text{MoOCl}(\text{DPP})_2$  and  $\text{MoCl}_2\text{DPP}$ , where  $\text{DPP} = \text{Ph}_2\text{P}(\text{O})\text{O}^-$  were studied in benzene, chloroform and methylene chloride solutions. The g-factors were determined for these complexes. It has been shown that these complexes have a very labile equilibrium. Addition of HCl to the solution of  $\text{MoO}(\text{DPP})_3$  shifts the equilibrium towards the formation of chlorine containing complexes, all the way to the formation of  $\text{MoOCl}_4$ . Dissolving the complex  $\text{MoOCl}(\text{DPP})_2$  in chloroform is accompanied by the formation of several complexes due to redistribution of the ligands, among which the  $\text{MoO}(\text{DPP})_3$  and  $\text{MoOCl}_2\text{DPP}$  are the most stable ones.

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USSR

UDC 545.775-386

BUSLAYEV, Yu. A., KUZNETSOVA, A. A., YANKINA, L. F., and ZACHAROVA, I. A.,  
Institute of General and Inorganic Chemistry imeni N. S. Kurnakov, Academy of  
Sciences USSR

"Polyphosphinates of Oxomolybdenum (V)"

Moscow, Zhurnal Neorganicheskoy Khimii, Vol 17, No 2, Feb 72, pp 415-419

Abstract: Upon reaction of  $\text{MoOCl}_3$  with diphenylphosphinic acid  $\text{HOPh}_2\text{P}$ , polyphosphinate of oxomolybdenum with the composition  $\text{MoOCl}_2 \cdot (\text{PO}_2\text{Ph}_2)_n$  (I) and  $\text{MoOCl}(\text{PO}_2\text{Ph}_2)_2$  (II) formed, which had the structure of polymers with phosphinate bridges and isolated molybdenum-oxygen bonds. On reaction with EtOH, I and II were converted into the dioxomolybdenum phosphinate  $\text{MoO}_2(\text{PO}_2\text{Ph}_2)_n$  (III). I reacted with EtOH more readily than II. With an increasing degree of replacement of phosphinate groups with Cl atoms (I vs. II) and of Cl with O atoms (III vs. I), the degree of polymerization of the phosphinate in  $\text{HClO}_3$  solutions increased.

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USSR

UDC 621.357.1:669.713.72(088.8)

DOMRACHEV, B. P., YANKO, E. A.

"Device for Heating the Self-Igniting Anode of an Aluminum Electrolyzer"

USSR Author's Certificate No 313896, filed 27 Oct 69, published 24 Nov 71 (from RZh-Khimiya, No 12, Jun 72, Abstract No 12L3432)

Translation: A device for heating the self-igniting anode of an Al-electrolyzer including burners for burning the anode gases is distinguished by the fact that in order to improve the anode quality, reduce the losses of fluoride salts and reduce the gas in the atmosphere of the shop, the device is made in the form of flat sealed metal gas ducts installed on the outside of the end walls and corners of the anode jacket in its upper section.

1/1

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Thermomechanical Treatment

USSR

SOLOMADINA, YE. A., YANKOBSKIY, V. M., and BERNSHTEYN, M. L.

"Strain Hardening of Low-Carbon Steel with Thermomechanical Treatment"

Dnepropetrovsk, Metallurgicheskaya i Gornorudnaya Promyshlennost', No 4(82),  
Jul-Aug 73, pp 25-27

Abstract: The effect of combined thermomechanical treatment on the properties of brand-10 low-carbon martensitic steel containing 0.06, 0.10 and 0.14% C was investigated according to two schemes (high-temperature thermomechanical treatment + cold deformation and high-temperature thermomechanical treatment + warm deformation). The advantage of warm deformation are shown and the possibility is demonstrated of making high-strength casing pipe with a 50-75 kg/mm<sup>2</sup> yield point from such steel. One table, seven bibliographic references.

USSR

UDC: 621.313.29:538.4

GOLODOV, N. N., KRAUYA, V. M., YANKOP, E. K.

"Use of a DC Conduction Pump for Ferrous Metals in Cut-Off Conditions"

Riga, Magnitnaya Gidrodinamika, No 3, Jul-Sep 1971, pp 118-124

Abstract: The particulars of operation of a DC conduction pump in the cut-off (deceleration) mode are experimentally and theoretically studied for molten ferrous metal. The following possibilities are considered: a) development by the pump of a head sufficient to slow down the jet; and b) limiting the change in temperature of the molten metal within the pump so that it is not allowed to solidify there at low velocities. It is proposed that the head of the pump in the cut-off state be calculated from relations for an idealized pump with the introduction of a coefficient of head reduction. A method is given for determining the proposed coefficient which takes current spreading into account. Studies of an experimental cut-off device confirmed the feasibility of regulating jets of iron and steel by electromagnetic forces up to total cessation of metal flow from the tank at a pressure of 1 atmosphere. One table, six illustrations, bibliography of seven titles.

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USSR

UDC 531.55.521.1

YAN'KOV, V. YU.

"Methods for the Orbit Stabilization of Low-Orbital Space Craft"

Moscow, Tr. Pyatykh Chteniy, Posyashch. Razrabotke Nauch. Naslediya i Razvitiyu Idey K. E. Tsuolkovskogo. Sekta. "Mekh. Kosmich. Poleta" (Works of the Fifth Lecture Series Devoted to Development of the Scientific Heritage and Development of the Ideas of K. E. Tsuolkovskiy. Series "Mechanics of Space Flight"), 1971, pp 114-126 (from Referativnyy Zhurnal, Mekhanika, No 2, Feb 72, Abstract No 2A69 by G. S. Suvorov)

Translation: The article deals with the problem of maintenance of the phase coordinates of a space craft in the vicinity of nominal values by means of controlling forces, applied continuously or discretely. There is proposed a model of atmospheric density, which approximates the tabular values of the CIRA model in the altitude range of  $100 \leq H_0 \leq 180$  km with a relative error of 2-6%:  $\rho = \rho_0 e^{-(4-b(H_0-H)) (H_0-H)}$ . A formula is derived for approximate determination of the descent time of the space craft from the altitude  $H_0$  to the previously given altitude  $H_1$ , which utilizes the adopted model. The problem of returning to the initial orbit is solved as a two-impulse flight, optimal with respect to energy expenditures, from one circular orbit to another. Here, by virtue of the small distance between the orbits,  $1/2$

YAN'KOV, V. Yu.

"Aerodynamic Stabilization of Low Orbits for Aerospace Ships"

Tr. 4-kh chteniy. posvyashch. razrabotke nauchn. naslediya i raz-  
vitiyu idey A. E. Tsiolkovskogo (Transactions of the Four Lec-  
tures Devoted to the Scientific Consequences and the Development  
of the Ideas of K. E. Tsiolkovskiy) 1969, "Mechanics of Space  
Flight" Section, Moscow, 1970, pp 168-180 (from RZh-Mekhanika,  
No. 2, Feb 71, Abstract No. 2B395)

Translation: An investigation is made of the continuous stabili-  
zation of the circular orbit for a space ship at an altitude of  
100-160 km, using the aerodynamic lift force, the magnitude of  
which is controlled by the change in attack angle based on the  
signals of an altitude measuring device and the vertical velocity.  
When the maximum angle of attack is achieved, a relay-action ac-  
celerating engine of low thrust is switched on. The engine is  
switched off when an attack angle with a limited permissible nega-  
tive value is attained. It is assumed that the earth is spheri-  
cal and that its gravitational field is central, that the motion  
of the ship at about its center of mass is inertialess, that the  
ship is symmetrical with respect to the horizontal plane, that  
its polar is square, that the deviation of the ship from its spe-  
cified orbit is small compared to the orbit radius, and that its  
speed in the orbital system of reference is small compared to the

USSR

YAN'KOV, V. YU., Tr. 4-kh chteniy, posvyashch. razrabotke nauchn. naslediya i razvitiyu idey K.E. Tsiolkovskogo 1969, Moscow, 1970, pp 168-180 (from RZh-Mekhanika, No 2, Feb 71, Abstract No 2B395)

orbital speed. The conditions for the existence and stability of the self-oscillations of the angle of attack are obtained by the method of harmonic linearization of the equations of motion. The possibility of stabilization of all parameters of the orbit at a distance, except the initial errors, by the use of this system is established. The numerical calculations demonstrated the possibility of choosing the parameters such that the maximum altitude deviation is 1 km and the angle of attack deviation is 5-8°. A good agreement between the results of linear theory and accurate computations on a digital computer is achieved. According to the computations, the expenditure of fuel is only 5-7% higher than in ideal continuous stabilization. In the second stage of the investigation, it was assumed that the altimeter had some error. The computations showed that the system operates stably with an input signal dispersion corresponding to the mean-square deviation in altitude up to 200-250 m and a vertical velocity up to 50 m/s. The stability of the system at sufficiently large measurement error is confirmed by simulation on an analog computer. G. S. Aronin

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USSR

UDC: 8.74

MATUSOV, Yu. A., KABANOV, V. S., YANKOVA, M. P.

"Forming a Plan for Prospective Developments"

Tr. Leningr. inzh.-ekon. in-ta (Works of Leningrad Engineering Economics Institute), 1972, vyp. 94, pp 99-102 (from RZh-Kibernetika, No 5, May 73, abstract No 5V792 by V. Mikheyev)

Translation: The paper describes a procedure for forming the plan for prospective developments, which consists in compiling plans in separate scientific and technical areas. Compilation of a plan for a scientific and technical area is preceded by a comparative analysis of correspondence of the expected consumer demand to the possibilities of the sector within the framework of the given scientific and technical area.

The prospective plan of developments is modeled by a "goal-decision" graph whose initial vertices correspond to possible scientific decisions (physical principles, design and technological decisions), while the terminal vertices correspond to the specific goals of the developments (new ele-

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USSR

MATUSOV, Yu. A. et al., Tr. Leningr. inzh.-ekon. in-ta, 1972, vyp. 94, pp 99-102

ments, blocks, assemblies, devices), while the arcs correspond to possible ways of realizing the formulated tasks. A consolidated flowchart is presented for an algorithm for forming a plan of prospective developments, and its individual blocks are described.

2/2

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USSR

UDC: 577.4

ZAKREVSKIY, A. D., YANKOVSKAYA, A. Ye.

"Interference-Resistant Coding of the Internal State of an Asynchronous Automaton"

Informatsionnyye materialy Nauch. sovet po kompleks. probl. "Kibernetika"  
AN SSSR (Informational Materials of the Scientific Council on the Complex Problem of Cybernetics, Academy of Sciences of the USSR), 1971, No 3(50), pp 53-58 (from RZh-Kibernetika, No 4, Apr 72, Abstract No 4V364)

Translation: It is shown how the algorithm from the authors' article (RZh-Mat, 1969, 12V353) should be modified in the case where stability of the automaton is to be ensured when no more than  $t_0$  memory elements fail.  
V. Khrapchenko.

1/1

USSR

UDC 51:621.391

ZAKREVSKIY, A. D., and YANKOVSKAYA, A. Ye.

"Coding of the Internal States of an Automaton"

Tr. Sib. fiz.-tekhn. in-ta pri Tomsk. un-te (Transactions of the Siberian Technical-Physics Institute at Tomsk University), No 51, 1970, pp 3-5  
(from Referativnyy Zhurnal -- Matematika, No 6, June 71, Abstract No 6V419)

Translation: An algorithm for coding internal states of an asynchronous automaton is proposed that eliminates unacceptable competition between memory elements. Results associated with the machine realization of this algorithm are presented.

1/1

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USSR

UDC 51:621.391

ZAKREVSKIY, A. D., YANKOVSKAYA, A. Ye.

"Coding of Internal States of an Automaton"

Tr. Sib. Fiz.-tekhn. In-ta pri Tomsk. Un-te [Works of Siberian Physics and Technology Institute at Tomsk University], No 51, 1970, pp 3-5, (Translated from Referativnyy Zhurnal, Kibernetika, No 6, 1971, Abstract No 6 V419).

Translation: An algorithm is suggested for coding the internal states of a synchronous automaton, eliminating non-permissible competition of memory elements. Results are presented related to machine realization of this algorithm.

USSR

UDC 576.095.14:577.391

VIZDALOVA, M., YANOVSKAYA, Ya., and ZHESTYANIKOV, V. D., Laboratory of Bacteriophage Biophysics, Institute of Biophysics, Czechoslovak Academy of Sciences, Brno, and Laboratory of Radiation Cytology, Academy of Sciences USSR, Leningrad

"Postirradiation Recovery of Cells. III. Survival of Escherichia coli in the Presence of Dark Repair Inhibitors Under Various Growth Conditions After UV- and X-Ray Irradiation"

Leningrad, Tsitologiya, Vol 14, No 1, 1972, pp 113-120

Abstract: After irradiation with X-rays and ultraviolet light, the maximum survival of E. coli containing 5-bromouracil in their DNA is significantly decreased. The sensitization factors at LD<sub>50</sub>-LD<sub>99</sub> are 2.4-1.6 in the complete medium at 44°C and 3.0-2.0 in the minimum M-9 medium. However, when the cells are grown in the complete medium at 19 and 37°C, the radiosensitization effect of 5-bromouracil is insignificant: the sensitization factors are 1.0-0.9 and 1.0-1.2 at the respective temperatures after UV irradiation and 1.3-1.2 and 1.7-1.5 after X-ray irradiation. When the postirradiation growth proceeds in the complete medium containing 0.3% caffeine, the survival of the bacteria is somewhat reduced at 44°C but unchanged at 19 and 37°C. Acriflavine added to the nutrient media decreases the survival of UV- and X-ray-irradiated bacteria

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USSR

VIZDALOVA, M., et al., Tsitologiya, Vol 14, No 1, 1972, pp 113-120

under all growth conditions. It is concluded that the repair of the damaged cell division mechanism, which normally takes place in the complete medium at 44°C and in the minimum medium, is inhibited in the presence of 5-brom-ouracil, caffeine, and acriflavine.

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Nuclear Science and Technology

USSR

UDC 666.764.4:543.53

EUKHAMEDSHINA, N. M., and YANKOVSKIY, A. V., Institute of Nuclear Physics of the Academy of Sciences UzbekSSR

"Determination of Admixtures in Graphite by the Neutron-Activation Method"

Moscow, Zavodskaya Laboratoriya, Vol 38, No 9, 1972, pp 1099-1101

Abstract: The experimental method of neutron-activation analysis was applied for the determination of Al, Si, Na, Mg, Mn, Cu, Fe, Cr, Sc, and Sb admixtures in natural graphite. Depending on the nuclear-physical properties of the admixtures, neutrons of a water-moderated water-cooled reactor (VVR-S) and high-speed neutrons of 14 MeV energy of the HQ-200 generator were used for their determination. Gamma spectra of graphite were taken with single-channel and multi-channel scintillation gamma-spectrometers after 4 and 20 min, 3 and 21 hrs, and 30 days of irradiation. Tabulated results show percentages of the admixtures, their sensitivity, and their relative mean square error, calculated from results of five parallel determinations. The latter did not exceed 12%. Three figures, one table, six bibliographic references. 1/1

1/2 033 UNCLASSIFIED PROCESSING DATE--13NOV70  
TITLE--YIELD OF METAL SUBSTANCE FOR METALS EXPOSED TO THE ACTION OF LASER  
RADIATION -U-  
AUTHOR--(04)-KORUNCHIKOV, A.I., PANTELEYEV, V.V., PUTRENKO, O.I.,  
YANKOVSKIY, A.A.  
COUNTRY OF INFO--USSR  
SOURCE--ZH. PRIKL. SPEKTROSK. 1970, 12(5), 819-23  
DATE PUBLISHED-----70  
SUBJECT AREAS--MATERIALS, PHYSICS  
TOPIC TAGS--BIBLIOGRAPHY, LASER THERMAL EFFECT, METAL SURFACE PROPERTY  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--3006/1425 STEP NO--UR/0368/70/012/005/0819/0823  
CIRC ACCESSION NO--AP0135099  
UNCLASSIFIED

2/2 033

UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0135099

ABSTRACT/EXTRACT--(U) GP-0-

ABSTRACT.

A REVIEW WITH 13 REFS., CONTG.

DATA ON THE EFFECTS OF LASER RADIATION FOCUSED ON SN, PB, ZN, MC, AL,

CU, NI, FE, MO, W, AND C TARGETS.

UNCLASSIFIED

USSR

UDC 519.281

YANKOVSKIY, B. YE.

"Information Method of Determining the Type of Distribution Law  
(for Discussion)"

Moscow, Nadezhnost' i kontrol' kachestva (Prilozh. k zh. Standarty i kachestvo)--Sbornik (Reliability and Quality Inspection (Appendix to Journal Standards and Quality) -- Collection of Works), No 2, 1971, pp 71-79 (from Referativnyy Zhurnal -- Matematika, No 9, Sep 71, Abstract No 9V174, by Ya. Shor)

Translation: A method of determining the kind of distribution law of a random variable, based on experimental data, using a comparison of the entropy of the empirical distribution with the theoretical-distribution entropy is proposed. It is suggested that tables be set up for entropy values of several common distributions. The dependence of the dispersing of the sampled entropy on the size of the sample is not considered in the article. Therefore the problem of the accuracy of the proposed method remains open to question.

1/1

USSR

UDC: 519.281

YANKOVSKIY, B. Ye.

"An Informational Method of Determining the Form of a Distribution Law"

V sb. Nadezhnost' i kontrol' kachestva (Prilozh. k zh. "Standarty i kachestvo") [Reliability and Quality Control--collection of works (Supplement to the journal "Standards and Quality")], No 2, Moscow, 1971, pp 71-79 (from RZh-Kibernetika, No 9, Sep 71, Abstract No 9V174)

Translation: A method is proposed for determining the form of the law of distribution of random quantities from experimental data by comparing the entropy of the empirical distribution with the entropy of the theoretical distribution. For this purpose it is proposed that tables be compiled for a number of frequently encountered distributions. The relationship between the sample entropy and the volume of the sample space is not considered in the article. Therefore the problem of the accuracy of the proposed method remains open. Ya. Shor.

1/1

- 4 -

USSR

UDC 620.172.254.05

BURNOS, V. A., TSVIKOVICH, S. I., SOLOMADINA, YE. A., and YANKOVSKIY, V. M.,  
All-Union Scientific Research and Engineering Design Institute of the Pipe  
Industry, Dnepropetrovsk

"Attachment for Tensile Testing Metals At Fast Strain Rates"

Moscow, Zavodskaya Laboratoriya, Vol 39, No 6, Jun 73, pp 755-756

Abstract: A special attachment has been developed at the All-Union Scientific Research and Engineering Institute of the Pipe Industry which when fitted to a K-117-Ye eccentric press allows tensile testing to be conducted at increased strain rates. Samples of steels 10, 20, 45, 30KhGSA, and 1Kh18N10T were tested using the new attachment and the results compared against tests conducted according to GOST 9651-61. The experimental strain rate was 20 c-l as compared to GOST 9651-61 with a strain rate of 0.005 c-l. No conclusions are given. A diagram of the unit is provided in the text. 1 figure, 1 table, 4 bibliographic references.

1/1

- 23 -

USSR

UDC 629.7.036:3:536.46

KUZIN, A. F., YANKOVSKIY, V. M., APOLONOV, V. L., and TALANTOV, A. V.

"Influence of the Initial Temperature Upon the Basic Combustion Characteristics of a Homogeneous Mixture in a Turbulent Stream"

Moscow, Gorennye i Vzryv--Sbornik (Combustion and Explosion--Collection of Works), Nauka, 1972, pp 337-341 (from Referativnyy Zhurnal--Aviatsionnyye i Raketnyye Dvigateli, No 2, 1973, Abstract No 2.34.34. Resume)

Translation: Data are presented of an experimental investigation of the relationship of the length of the combustion zone, the combustion time, and the rate of turbulent propagation of the flame to the temperature. The object of the investigation was a two-dimensional (turbulent) flame of a homogeneous gasoline-air mixture. The range of the investigation embraces:  $T_0 = 393-793^\circ\text{K}$ ;  $\alpha = 0.4-1.9$ ;  $Q = 30-75$  m/sec;  $C = 4.7\%$ . The experiments enabled the following to be established. 1. The mainstream temperature exerts a substantial influence upon the basic combustion characteristics. 2. As the mainstream temperature is increased, the rate of turbulent propagation of the flame increases, and the combustion time decreases, as does also the length of the combustion zone. 3. With an increase of the initial rate, the degree of influence of the initial temperature upon the combustion characteristics decreases. An

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- 30 -

USSR

KUZIN, A. F., Gorenije i Vzryv--Sbornik, Nauka, 1972, pp 337-341

analysis of the results of the investigation, conducted on the basis of a surface model of turbulent combustion, manifests a good correspondence between the conclusions of the theory and the experimental data. 4 figures. 5 references.

2/2

USSR

YANKOVSKIY, YU. K. and MAL'TSEVA, E. G.

UDC: 531.717.15

"Analysis of the Existing Method for the Quality Control of Tight Threads at the Machine-Building Plants of the City of Barnaul"

Tr. Altaysk. politekn. in-ta (Works of the Altay Polytechnic Institute), 1972, vyp 14, pp 113-122 (from RZh-32, Metrologiya i Izmeritel'naya Tekhnika, No 5, 1973. Abstract No 5.32.337)

Translation: The authors note that the reliability of average diameter threaded joints with negative allowance will depend on the sorting of mating threaded parts. An analysis of the existing method of control and sorting of threaded parts at the plants showed that the errors of measuring with rigid gages with a shortened profile lie within the 200-280 percent limits from the allowance for the sorting group. Under the existing method of the control and sorting of threaded mating parts, the value of negative allowance will oscillate within the limits of  $\pm 60$  microns. The described sliding gage has a measurement error which constitutes 20-25 percent of the allowance of the part. Measurement with a sliding gage makes it possible to determine the actual dimension  $d_{2\text{ meas.}}$  of the thread recess. Use of the sliding gage will make it possible to detect the deviation of a threaded hole from the correct geometric shape (conical, oval). The design of the sliding gage presupposes the constancy of measuring force. Original article: three illustrations, two tables, and four bibliographic entries.

1/1

USSR

UDC 547.26'118

MIZRAKH, L. I., BABUSHKINA, T. A., YAKOVLEV, V. G., KOZLOVA, L. N., YUKHNO, Ye. M., STAROSTINA, L. N., and YANOVCHIKINA, G. A.

"Phosphorus-Containing Derivatives of Isothiuronium." III. Alkylation of Thiourea with Diethyl Chlorophosphate and the Diethyl Ester of 2-Bromoethylphosphonic Acid"

Leningrad, Zhurnal Obshchey Khimii, Vol 43, No 11, Nov 73, pp 2364-2367

Abstract: It was established that the metaphosphate of S-ethylisothiuronium formed upon the reaction of diethyl chlorophosphate with thiourea. A study of the reaction of O, O-diethyl 2-bromoethylphosphonate with thiourea showed that in this reaction, as distinguished from that with alpha-halophosphonates (MizraKh et al, Zh. Obshch. Khim., Vol 41, 2654, 1971), which proceeded in the opposite order, alkylation of thiourea with the haloalkyl group took place initially, while participation of the ester group of the alkylation occurred only under more severe conditions. On further heating of the product  $(EtO)_2P(O)CH_2CH_2SC(NH_2)_2Br^-$  that formed initially,  $EtBr$  evolved and the product  $O_2P(OEt).CH_2CH_2SC(NH_2)_2$  was obtained.

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USSR

UDC: 577.153.35

DEBORIN, G.A., YANOPOL'SKAYA, N.D., and OPARIN, A.I., Academician, Institute of Biochemistry imeni A.N. Bakh, Academy of Sciences USSR, Moscow

"The Effect of Substrate and Competing Ribonuclease Inhibitors on Ribonuclease Transfer Across an Artificial Lipid Membrane in a Model System"

Moscow, Doklady Akademii Nauk SSSR, Vol 190, No 3, Jan 70, pp 720-721

Abstract: The experimental apparatus consisted of chambers A and B separated by a membrane. Chamber A was filled with a mixture of an enzyme and competing inhibitor, and chamber B with distilled water. The system was kept for 3 hrs at 37°C, then the enzyme content in chamber B was determined by the Fiers and Stocks method. RNA, heparin and mononucleotides obtained by treating RNA with ribonuclease were used as competing inhibitors. Separate experiments have shown that neither of these components acts destructively on the lipid membrane. It was determined that these materials facilitate passage of the enzyme molecules across the membrane. It was postulated that the formation of a complex enzyme-competing inhibitor leads to a conformation of enzyme protein facilitating its transport in the form of a labile compound with membrane lipids.

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Acc. Nr.

ATO101937

Abstracting Service:  
CHEMICAL ABST.

5-70

Ref. Code

4/R0020

107335b Effect of the presence of substrate and inhibitors of ribonuclease on its transport through a synthetic lipid membrane in a model system. Deborin, G. A.; Yanopol'skaya, N. D.; Oparin, A. I. (Inst. Biokhim. im. Bakha, Moscow, USSR). *Dokl. Akad. Nauk SSSR* 1976, 190(3), 720-1 [Biochem] (Russ). Formation of an RNase-substrate-inhibitor complex (with RNA, a mixt. of mononucleotides, or heparin) favored RNase transport through model lipid membranes. This verifies previous predictions that formation of the Michaelis complex is important in the mechanism of RNase transport to its substrate through the lipid membrane. BJR

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19851893

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1/2 012  
TITLE--NON EMPIRICAL COMPUTATION OF THE BENZYL RADICAL ELECTRONIC  
STRUCTURE -U- UNCLASSIFIED PROCESSING DATE--04DEC70  
AUTHOR--(03)-KRUGLYAK, YU.A., PREYSS, KH., YANOSHCHER, R.  
COUNTRY OF INFO--USSR  
SOURCE--UKRAYIN. FIZ. ZH. (USSR), VOL. 15, NO. 6, P. 980-8 (JUNE 1970)  
DATE PUBLISHED--JUN70  
SUBJECT AREAS--CHEMISTRY  
TOPIC TAGS--ELECTRON STRUCTURE, BENZENE DERIVATIVE, FREE RADICAL, ELECTRON  
SPIN RESONANCE, SPECTRUM  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY FICHE NO----FD70/605029/F05 STEP NO--UR/0185/70/015/006/0980/0988  
CIRC ACCESSION NO--AP0141770  
UNCLASSIFIED

2/2 012

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0141770

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE RESULTS ARE PRESENTED OF NON  
EMPIRICAL COMPUTATION OF THE BENZYL RADICAL BY THE UNRESTRICTED SCF  
METHOD ON THE GAUSSIAN BASIS WITH AN ACCOUNT FOR ALL 49 ELECTRONS.  
CLOSE ANALOGY IS FOUND BETWEEN SEMIEMPIRICAL PI ELECTRONIC AND  
NONEMPIRICAL DESCRIPTION OF HTE FILLED PI SHELLS. SPIN DENSITY  
DISTRIBUTION COMPUTED DIRECTLY AT THE PROTONS AGREES QUALITATIVELY WITH  
EXPERIMENTAL ESR SPECTRA OF BENZYL. NOTICEABLE ALTERNATION OF PI  
ELECTRONIC DENSITY ON CARBON ATOMS IS FOUND.

UNCLASSIFIED

1/2 007 UNCLASSIFIED PROCESSING DATE--16OCT70  
TITLE--COMPOSITION OF PIGMENTS AND TOCOPHEROLS OF RYE LIPIDS -U-  
AUTHOR--(04)-KLYUSHKINA, YU.F., DENISENKO, YA.I., NECHAYEV, A.P.,  
YANUTOVSKIY, M.TS.  
COUNTRY OF INFO--USSR  
SOURCE--PRIKL. BIOKHM. MIKROBIOL. 1970, 6(1), 95-8  
DATE PUBLISHED-----70  
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES  
TOPIC TAGS--CEREAL CROP, BIOLOGIC PIGMENT, THIN LAYER CHROMATOGRAPHY,  
CHEMICAL ANALYSIS  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--1996/0597 STEP NO--UR/0411/70/006/001/0095/0098  
CIRC ACCESSION NO--AP0117825  
UNCLASSIFIED

2/2 007

UNCLASSIFIED

PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AP0117825

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. FLOUR PREPNS. OF 6 RUSSIAN RYE VARIETIES WERE EXTG. WITH ETHER. BY THIN LAYER CHROMATOG. IT WAS SHOWN THAT THE CAROTENOID FRACTION CONTAINS BETA CAROTENE, POLY (CIS LYCOPENE), XANTHOPHYLL EPOXIDE, XANTHOPHYLL, AND TARAXANTHIN. THE TOCOPHEROL FRACTION WAS SEPD. BY GAS LIQ. CHROMATOG. (CELITE 545 IMPREGNATED WITH 10PERCENT SILICONE ELASTOMER SE-30, CARRIER GAS AR, TEMP. 240DEGREES). THE FOLLOWING TOCOPHEROLS WERE IDENTIFIED (RELATIVE AMTS. IN PERCENT): ALPHA(37-51), GAMMA(7-11), DELTA(17-26), AND ZETA SUB1(13-24). FACILITY: MOSCOW TECHNOL. INST. FOOD IND., MOSCOW, USSR.

UNCLASSIFIED

1/2 024 UNCLASSIFIED  
TITLE--TRANSFORMATION OF A SMALL BALL -U- PROCESSING DATE--30OCT70  
AUTHOR--YANDV, L.B.  
COUNTRY OF INFO--USSR  
SOURCE--SOVETSKAYA ROSSIYA, JULY 7, 1970, P 4, COLS 4-7  
DATE PUBLISHED--07JUL70  
SUBJECT AREAS--MATERIALS  
TOPIC TAGS--GLASS FIBER, CABLE INSULATION, HIGH PRESSURE EFFECT  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--1999/0867 STEP NO--UR/9022/70/000/000/0004/0004  
CIRC ACCESSION NO--AN0122911  
UNCLASSIFIED

2/2 024

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--ANC122911

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE ASTRAKHAN GLASS FIBER PLANT CONVERTS 10 G GLASS MARBLES INTO A 30 KM LONG AND 5 TO 7 MICRONS THICK FIBER. TWO, THREE, OR MORE SUCH FIBERS TWISTED TOGETHER CAN WITHSTAND PRESSURES OF 700 G TO 20 KG. THE PLANT ALSO PRODUCES AN EXTRA STRONG INSULATING MATERIAL FOR HIGH VOLTAGE CABLES.

UNCLASSIFIED

USSR

UDC: 681.2/325

KILBNIK, I. I., LEZOV, A. P., SAZONOV, I. A., TSEPLYAYEV, K. N., and SILU-  
YANOV, V. A. (1)

"Specialized Digital Measuring Unit"

Tr. Mosk. energ. in-ta (Works of the Moscow Power Engineering Institute),  
1972, vyp.154, pp 133-138 (from RZh-32. Metrologiya i Izmeritel'naya Tekhnika,  
No 5, 1973, Abstract No 5.32.60)

Translation: The authors present a short description and the technical characteristics of a digital unit developed by the Department of Information-Measurement Technology of the Moscow Power Engineering Institute for the remote control study of high-speed processes. This unit in some ways satisfies current requirements. The unit consists of three blocks: analog-digital converter, a remote block, and a matching block. The analog-digital converter and the remote block are connected by a cable communication line 250-500m long. The following are the basic technical data of the digital remote control unit model: nominal value of the input voltage  $U_{nom} = 100\text{mV}$ ; fundamental error of the measurement result at the most sensitive limit does not exceed  $\pm (0.05 - 0.025 \frac{U_{nom}}{U_x})$  percent; maximum sensitivity is not less than

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USSR

KELIMNIK, I. I., et al., Tr. Mosk. energ. in-ta, 1972, vyp. 154, pp 133-138 (1)

40 microvolts; with the following input resistance: a) not less than 100 kilohms under conditions of compensation; b) not less than 50 kilohms in the equilibration process; 50, 100, 200, 400, 1000 measurement frequency; power consumed from a 220v network does not exceed 30w; unit dimensions: a) the analog-digital converter - 220 x 400 x 250 mm; b) the remote block - 180 x 270 x 170 mm, c) matching block - 180 x 200 x 180 mm. Original article: two illustrations and one bibliographic entry.

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- 151 -

USSR

UDC 541.6:541.12

YANOVA, L. P., BLYSKOSH, G. S., CHIGISHOVA, A. M., TAUBMAN, A. B., CHALYKH, A. Ye., and LUK'YANOVICH, V. M., Institute of Physical Chemistry, USSR Academy of Sciences, Moscow

"Mechanical and Chemical Grafting of Polymers on the Surface of Ionic Crystals"

Moscow, Kolloidnyy Zhurnal, Vol XXXIII, No 1, Jan-Feb 1971, pp 171-172

Abstract: It was previously established by several of the authors that grafting of polymers on a crystal surface is not uniformly distributed, but appears at localized centers. The present study was undertaken to determine the character of this localization.

Vacuum-dried (3 hrs., elevated temperature) rock salt and calcite crystals were submerged in a monomer, then split, to secure a fresh surface. Intensity of electron emission was measured.

Electron microscope photographs confirmed the localization of polymer grafting; length of stay in the monomer had no effect on the progress of grafting. It is concluded that successful grafting is dependent not on the bond strength of the ionic crystal, but rather on the formation of radicals and on the ionization of defects and the rise of free electron emission, appearing at the time of splitting.  
1/1

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Receivers and Transmitters

USSR

UDC: 621.391.81

MOLCHADSKIY, L. I., YANOVER, B. I.

"A Quadrature Receiver Which Utilizes Discrete Representation of Signals"

Tr. Ryazan. radiotekhn. in-ta (Works of the Ryazan Radio Engineering Institute), 1970, vyp. 29, pp 275-285 (from RZh-Radiotekhnika, No 6, Jun 71, Abstract No 6A59)

Translation: The authors consider a correlation receiver for a signal with an unknown initial phase, represented by discrete samplings. An algorithm is found for the operation of a correlation receiver which uses discrete samplings of the quadrature components of initial processes. It is shown that at a quantization frequency equal to to the width of the frequency spectrum of the signals, only multiplication of instantaneous samplings of the signals in the receiver is possible without accounting for the high-frequency functions of the readings. Resumé.

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USSR

UDC: 539.26:536.5.081.7

SIROTA, N. N., Academician Belorussian Academy of Sciences, and  
YANOVICH, V. D.

"Periods of Identity and Mean-Square Displacements of Ions of Solid Solutions of Zinc and Cadmium Selenides"

Moscow, Doklady Akademii Nauk SSSR, vol 204, No 3, 1972, pp 583-585

Abstract: The purpose of the work described in this article was to establish the propagation limit of solid solutions with sphalerite and wurtzite structures in ZnSe-CdSe systems and to investigate by means of x-ray analysis the rules for the change in quantity of the mean-square dynamic shifts of selenium ions and of the zinc and cadmium ions averaged over the mass. Earlier, determinations had been made of mean-square displacements of selenium, zinc, and cadmium ions from the x-ray analysis data; the present work discusses the method of preparing specimens. Alloys of the ZnSe-CdSe system were prepared by direct fusing of components in the relationship of  $(\text{ZnSe})_x(\text{CdSe})_{1-x}$  in an argon atmosphere. Flat, powdered specimens were used in x-ray analysis with URS-50I equipment in monochromatized  $\text{CuK}\alpha$  radiation. The authors claim to be the first to detect the change in mean-square shift of solid solution ions as a function of the composition. They are

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USSR

UDC: 539.26:536.5.081.7

SIROTA, N. N., et al, Doklady Akademii Nauk SSSR, vol 204, No 3,  
1972, pp 583-585

associated with the Institute of Semiconductors and Solid State  
Physics at Minsk.

2/2

- 36 -

USSR

UDC 635.21:632.938/632.25

YANOVICH, V. I.

"Serological Study of the Agent of Ring Rot of Potatoes"

Minsk, Izvestiya Akademii Nauk BSSR, Seriya Sel'skokhozyaystvennykh Nauk,  
No 1, 1972, pp 52-56

Abstract: Antigenic properties of 36 strains of *Corynebacterium sepeodonicum* were studied. All but two (7750 and 7754 were taken from the collection of the Institute of Microbiology and Virology, Academy of Sciences Ukrainian SSR) were isolated by the author. These strains were studied by cross agglutination and precipitation reactions with sera prepared for all strains except 7750. Serological heterogeneity of the strains was established.

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1/2 C19 UNCLASSIFIED PROCESSING DATE--20NOV70  
TITLE--LOCAL BLOOD CIRCULATION IN ADULT PATIENTS WITH ASEPTIC NECROSIS OF  
THE FEMORAL HEAD -U-  
AUTHOR--(03)-PIKHAYLOVA, N.M., SEMENOV, V.A., YANOVSKAYA, E.M.  
COUNTRY OF INFO--USSR  
SOURCE--ORTOPEDIYA, TRAVMATOLOGIYA I PROTEZIROVANIYE, 1970, NR 5, PP 40-44  
DATE PUBLISHED-----70  
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES  
TOPIC TAGS--BONE DISEASE, NECROSIS, DRUG TREATMENT, SODIUM ISOTOPE,  
HEMODYNAMICS  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--3004/0741 STEP NO--UR/9115/70/000/005/0040/0044  
CIRC ACCESSION NO--AP0131336  
UNCLASSIFIED

2/2 019

UNCLASSIFIED

PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0131356

ABSTRACT/EXTRACT--(U) GP-C- ABSTRACT. PATIENTS WITH ASEPTIC NECROSIS OF THE FEMORAL HEAD SHOW MARKED DISTURBANCES OF THE LOCAL CIRCULATION. THE DEGREE OF IMPAIRMENT OF LOCAL TISSUE BLOOD FLOW WAS INVESTIGATED WITH AID OF INTRACASEOUS INJECTION OF MICROAMOUNTS OF SODIUM 24 AND EXTERNAL ACTIVITY COUNT USING A RADIOMETER. CHARACTERISTIC OF PATIENTS WITH ASEPTIC NECROSIS OF THE FEMORAL HEAD WAS A MARKED LENGTHENING OF TIME OF SODIUM 24 EXCRETION INJECTED INTO THE GREATER TROCHANTER OF THE DAMAGED JOINT IN THE AMOUNT OF 1-2 MICROCURIES IN COMPARISON WITH THE TIME OF ITS EXCRETION IN NORMAL PERSONS, AND IN COMPARISON WITH THE UNDAIMAGED SYMMETRIC JOINT IN THE GIVEN PATIENT. IN PATIENTS WITH BILATERAL INVOLVEMENT, THE SODIUM 24 EXCRETION TIME WAS MORE PROTRACTED ON THE SIDE OF BIGGER DAMAGE IN COMPARISON WITH THE TIME OF ITS EXCRETION FROM LESS DAMAGED JOINT. PROLONGATION OF THE ISOTOPE EXCRETION TIME IS AN EVIDENCE OF GREATER OR LESSER DISTURBANCE OF LOCAL CIRCULATION, SLOWING DOWN OF THE VENOUS OUTFLOW. THESE DATA CORRELATE WITH DATA OF PHLEBOGRAPHY AND OTHER HEMODYNAMIC INDICES IN PATIENTS WITH ASEPTIC HIP NECROSIS. FACILITY: TSENTRAL'NOGO INSTITUTA TRAVMATOLOGII I ORTOPEDI.

UNCLASSIFIED

1/2 010  
UNCLASSIFIED  
TITLE--REACTION OF CYANOHYDRINS WITH POLYENE AND ENYNE ALDEHYDES IN THE  
PRESENCE OF TRIETHYLAMINE -U- PROCESSING DATE--23OCT70  
AUTHOR--(03)--SHAKHIDAYATOV, KH., YANOVSKAYA, L.A., KUCHEROV, V.F.  
COUNTRY OF INFO--USSR  
SOURCE--IZV. AKAD. NAUK SSSR, SER. KHIM. 1970, (3), 665-7  
DATE PUBLISHED-----70  
SUBJECT AREAS--CHEMISTRY  
TOPIC TAGS--ALDEHYDE, CARBOXYLIC ACID ESTER, ACETONE, CYANIDE,  
TRIETHYLAMINE, EXOTHERMIC REACTION  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--1999/1786 STEP NO--UR/0052/70/000/003/0665/0667  
CIRC ACCESSION NO--AP0123583  
UNCLASSIFIED

2/2 010

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0123583

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. SORBALDEHYDE AND ME SUB2 C(CN)OH IN THE PRESENCE OF ET SUB3 N 1 HR GAVE 53PERCENT ACETONE CYANOHYDRIN ESTER OF 3,PENTENECARBOXYLIC ACID, B SUB0.4 80-20DEGREES, AND 21PERCENT 1,CYANO,3,5,HEPTADIEN,2,YL 3,PENTENECARBOXYLATE, B SUB0.4 93-100DEGREES. THE FORMER AND SN KOH GAVE 70PERCENT 3,PENTENECARBOXYLIC ACID, B SUB30 115DEGREES. 5,PHENYL,2,4,PENTADIEN,1,AL AND ME SUB2 C(CN)OH IN THE PRESENCE OF ET SUB3 N GAVE AFTER AN EXOTHERMIC REACTION 11PERCENT ACETONE CYANOHYDRIN ESTER OF 3,STYRYLPROPANOIC ACID, M. 35.5-6.5DEGREES. THE SAME REACTION RUN IN ETOH GAVE 55PERCENT ET 3,STYRYL,PROPANOATE, B SUB0.7 103-5DEGREES; FREE ACID M. 87.5-89DEGREES. SIMILARLY, 5,CARBETHOXY,2,4,PENTADIEN,1,AL AND ME SUB2 C(CN)OH GAVE 56PERCENT DI ET DELTA PRIME1,2 DIHYDROMUCATE, B SUB0.5 88-90DEGREES; SIMILARLY WAS PREPD. 83PERCENT DELTA PRIME1,2 DIHYDROMUCONIC ACID, M. 167.5-8.5DEGREES. 2,4,6,OCTATRIEN,1,AL AND ME SUB2 C(CN)OH WITH ET SUB3 N IN ETOH GAVE 41PERCENT ET 4,6,OCTADIENATE, B SUB0.85 90-1DEGREES; 7,PHENYL,2,4,6,HEPTATRIEN,1,AL GAVE 40PERCENT ET 7,PHENYL,4,6,HEPTADIENATE, B SUB0.04 130-5DEGREES; 4MIXED ET 2,3,CIS AND 2,3,TRANS,4,METHYL,2,4,PENTADIENATES, B SUB17 68-70DEGREES. FACILITY: INST. ORG. KHIM. IM. ZELINSKOGO, MOSCOW, USSR.

1/2 018  
UNCLASSIFIED  
TITLE--MECHANISM OF THE CONVERSION OF ALPHA, BETA UNSATURATED ALDEHYDES  
INTO ESTERS OF SATURATED ACIDS UNDER THE ACTION OF CYANOHYDRINS IN THE  
AUTHOR--(03)-SHAKHIDAYATOV, KH., YANOVSKAYA, L.A., KUCHEROV, V.F.  
COUNTRY OF INFO--USSR  
SOURCE--IZV. AKAD. NAUK SSSR, SER. KHIM. 1970, (3), 581-6  
DATE PUBLISHED-----70  
SUBJECT AREAS--CHEMISTRY  
TOPIC TAGS--ALDEHYDE, CYANIDE, TERTIARY AMINE, DEUTERIUM COMPOUND, MASS  
SPECTRUM, PROPIONIC ACID, ESTER, CHEMICAL REACTION MECHANISM  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--2000/0745  
CIRC ACCESSION NO--AP0124415  
STEP NO--UR/0062/70/000/003/0581/0586  
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PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0124415

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. TREATING ME SUB2 C(CN)OH WITH D SUB2 O 3-5 DAYS GAVE A PRODUCT CONTG. SOME 40PERCENT D AND REPEATED OPERATION GAVE THAT PRODUCT CONTG. SOME 60PERCENT D, WHILE A 3RD OPERATION GAVE PRODUCT (I) WITH SOME 80PERCENT D CONTENT. THIS AND PHCH:CHCHO IN THE PRESENCE OF ST SUB3 N GAVE 55PERCENT DEUTERATED PRODUCTS B SUBO.4 107DEGREES, CONTG. 35PERCENT ALPHA,D, 39PERCENT ALPHA,ALPHA,D SUB2, IS SMALLER THAN 7PERCENT ALPHA,BETA,D SUB2, AND SIMILAR TO 19PERCENT ALPHA,ALPHA,BETA,D SUB3 ANALOGS OF ACETONECYANOHYDRIN ESTER OF 3-PHENYLPROPIONIC ACID, AS DETD. FROM THE MASS SPECTRUM. SIMILAR REACTION WITH PHCH:CMECHO GAVE 50PERCENT MIXED PRODUCT CONTG. 87PERCENT ALPHA,D, 13PERCENT ALPHA,ALPHA AND ALPHA,BETA,D SUB2 ANALOGS OF ACETONECYANOHYDRIN ESTER OF 2-METHYL,3-PHENYLPROPIONIC ACID. REACTION OF I WITH PHENYLPROPARGYL ALDEHYDE SIMILARLY GAVE 35PERCENT MIXED DEUTERATED PRODUCTS CONTG. 46PERCENT A,CIS,D, 45PERCENT ALPHA,TRANS,D, 9PERCENT BETA,D (6PERCENT TRANS AND 3PERCENT CIS) ANALOGS OF ME CINNAMATE. I AND CROTONALDEHYDE GAVE 41PERCENT CROTONALDEHYDE CYANOHYDRIN, B SUB12 85-90DEGREES, N PRIME20 SUBD 1.4442. THE REACTION MECHANISM WAS DISCUSSED. FACILITY: INST. ORG. KHIM. IM. ZELINSKOGO, MOSKOW, USSR.

UNCLASSIFIED

USSR

UDC 612.11.014.462.1

GUBSKIY, V. I., and YANOVSKAYA, I. G., Laboratory of Water-Salt Balance and Energy Exchanges, Kharkov Scientific Research Institute of General and Emergency Surgery

"Some Regular Changes in Osmotic Concentration of Blood After Exposure to Extreme Factors"

Moscow, Byulleten' Eksperimental'noy Biologii i Meditsiny, No 1, 1970, pp 38-40

Abstract: Ether lowered total osmotic pressure in intact rats, but has no significant effect on the potassium and sodium concentrations of serum. Surgery after anesthesia lowered osmotic pressure even more. Ether and surgery produced the opposite effects if the osmotic pressure was lowered beforehand by hydration. Shifts in the sodium and potassium concentrations did not parallel those in total osmotic pressure.

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Acc. Nr.: **AP0031215**

Ref. Code: UR 0219

PRIMARY SOURCE: Byulleten' Eksperimental'noy Biologii i  
Meditsiny, 1970, Vol 69, Nr 1, pp 38-40

SOME REGULARITIES GOVERNING VARIATIONS OF OSMOTIC BLOOD  
CONCENTRATION IN EXPOSURE OF THE ORGANISM TO EXCEPTIONALLY  
STRONG EFFECTS

Gubskiy, V.I.; Yanovskaya, L.G.

Research Institute of General and Emergency Surgery, Kharkov

Ether anesthesia and operative interventions regularly produced a drop of the blood serum osmotic pressure. With preliminary reduction of osmotic concentration through hydration anaesthesia and operative traumas yielded an opposite effect. Variations in the sodium and potassium concentration were not paralleled by corresponding shifts in the summary osmotic pressure.

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USSR

VITUL'SKAYA, N. V., VOL'f, L. A., GILLER, S. A., YEGOROV, B. A., KOTETSKIY, V. V., PLOTKIN, L. L., and YANOVSKAYA, N. B., Leningrad Institute of Textile and Light Industry imeni S. M. Kirov; Institute of Organic Synthesis, Academy of Sciences Latvian SSR

"New Fibers for Medical Use"

Riga, Fiziologicheski i Opticheski Aktivnyye Polimernyye Veshchestva, "Zinatne," 1971, pp 145-149

Abstract: In order to increase the X-ray contrast effect of surgical suture materials, films and fibers were prepared from aqueous solutions of polyvinyl alcohol (PVA) with addition of barium sulfate in various concentrations (0.5-20%). The best contrast was obtained with 150  $\mu$  PVA film containing 10 and 20 BaSO<sub>4</sub>. A lower dose (1%) of BaSO<sub>4</sub> did not produce desired results. Sutures were prepared from PVA with admixture of polyformaldehyde, BaSO<sub>4</sub>, barium chloride, and collargol. The prepared fibers were thermostabilized at 220°C for 10 min and acetylated in water bath containing 20%  $\beta$ -(5-nitro-furyl-2)-acrolein and 20% H<sub>2</sub>SO<sub>4</sub> at 70°C for 2 hrs. The ready to use fibers were mechanically strong, stable in hot water (boiling for 1 hr produced only 10% shrinkage), and possessed high antimicrobial properties, especially toward

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VITUL'SKAYA, N. V., et al., Fiziologicheski i Opticheski Aktivnyye Polimernyye Veshchestva, "Zinatne," 1971, pp 145-149

Staphylococcus aureus, Escherichia coli, Trichophyton group, and other bacteria. Good results were obtained with polyformaldehyde fibers with 5 and 10% BaSO<sub>4</sub>, PVA with iodine-containing organic compounds. The obtained fibers were used for the manufacturing of such surgical materials as sutures, cotton, nets, contraceptive devices, etc., which presently are undergoing medical testing.

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USSR

UDC 669.295.620.1

BOCHVAR, G. A., YANOVSKAYA, N. V.

"Structures and Properties of VTZ-1 Alloy as a Function of Cooling Conditions from Single-Phase  $\beta$ -state Temperature"

Moscow, Tsvetnye Metally, No 8, 1972, p 62.

Abstract: The process of formation of the microstructure and mechanical properties of VTZ-1 alloy was studied as a function of the conditions of phase recrystallization upon cooling of the material from the temperature of the single-phase  $\beta$ -state. The material used in the study was a group of series-produced bars of VTZ-1 alloy 20 mm in diameter with no 8 grain structure boundaries visible under 100-500 $\times$  magnification. Photomicrographs are presented of the microstructures of specimens produced by various cooling rates. The results themselves are not unexpected: fixation of less equilibrium structures and phase composition during preliminary cooling results in the production, following additional annealing, of higher strength and lower ductility. However, this factor is not well considered at present in the production of various titanium alloy semifinished goods. The temperature of completion of deformation and cooling conditions of the material following deformation are not often considered as an important factor influencing the properties of the material following final heat treatment.

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1/2 022 UNCLASSIFIED PROCESSING DATE--09OCT70  
TITLE--STRUCTURAL FEATURES OF THE STABILIZATION OF PRIMARY  
RECRYSTALLIZATION MATRIX FOR TRANSFORMER STEEL -U-  
AUTHOR-(02)-MOLOTILOV, B.V., YANOVSKAYA, I.N.  
COUNTRY OF INFO--USSR  
SOURCE--IZV. AKAO. NAUK SSSR, SER. FIZ. 1970, 34(2), 356-60  
DATE PUBLISHED--70  
SUBJECT AREAS--MATERIALS  
TOPIC TAGS--TRANSFORMER STEEL, NONMETALLIC INCLUSION, SULFIDE, NITRIDE,  
METAL RECRYSTALLIZATION, ELECTRON MICROSCOPY, MAGNETOMETER, ELECTRON  
MICROPROBE  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--1995/0182 STEP NO--UR/0048/70/034/002/0356/0360  
CIRC ACCESSION NO--AP0115886  
UNCLASSIFIED

2/2 022

UNCLASSIFIED

PROCESSING DATE--09OCT70

CIRC ACCESSION NO--AP0115886

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. NITRIDE OR SULFIDE INCLUSIONS APPEARING IN TRANSFORMER STEELS ACCORDING TO THE METALLURGICAL TECHNOL. USED, PRODUCE A STABILIZATION OF THE FERRITE MATRIX NECESSARY FOR THE SECONDARY RECRYSTN. TO OCCUR, WITH THE ACCOMPANYING FORMATION OF THE (110) (001) TEXTURE. AN INVESTIGATION HAS BEEN CARRIED OUT, INVOLVING ELECTRON MICROSCOPY, ELECTRON MICROPROBE ANAL., AND MAGNETOMETRIC METHODS, TO DET. THE STRUCTURE OF THE PRIMARY RECRYSTN. MATRIX, AND THE INFLUENCE OF NONMETALLIC INCLUSIONS ON THE MATRIX FORMATION AND THE PROCESS OF SECONDARY RECRYSTN. CONTENTS OF N, S, AND C, GRAIN SIZE OF THE MATRIX, AS WELL AS CHARACTER, SIZE AND DISTRIBUTION OF INCLUSIONS WHICH PRODUCE OPTIMUM MATRIX CHARACTERISTICS ARE GIVEN.

FACILITY: TANIICHM IM. BARDINA, MOSCOW, USSR.

UNCLASSIFIED

USSR

YANOVSKAYA, YE. B.

"The Existence of Situations of Equilibrium in Non-coalition Games of Two Persons"

Teoriya Igr [Games Theory -- Collection of Works], Yerevan, 1973, pp 254-264 (Translated from Referativnyy Zhurnal Kibernetika, No 10, 1973, Abstract No 10V459)

Translation: A finite-additive expansion of an antagonistic game is defined and its full definition is proven. Using finite-additive strategies, certain theorems of existence of the value of a game and situations of equilibrium are proven in infinite antagonistic and nonantagonistic non-coalition games of two persons.

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USSR

UDC 543.42:620.193.1:621.375.8

PUTRENKO, O. I., ~~YANOVSKIY, A. A.~~

"Investigation of the Erosion of Metals by Light during a Laser Pulse"

Minsk, Zhurnal Prikladnoy Spektroskopii (Journal of Applied Spectroscopy), Vol 15, No 4, Oct 71, pp 596-604

**Abstract:** The mechanism of the erosion of various metals by laser pulses was investigated. Samples of tin, lead, aluminum, copper, and iron were exposed to a beam from a laser operating in a free oscillation mode. The erosion products were visualized on a transparent organic glass disk between the sample and the laser. Scan records were made by rotating the samples during the laser pulse. The 7-joule pulse had a duration of  $\sim 1$  millisecc and was focused on the sample through a 200-mm focal length lens. The disk was rotated at 3000 rpm with the beam intersecting at a point approximately 65 mm from the center. Ejecta from the sample were deposited on the disk in the form of an elongated vapor spot, two comet-shaped deposits of small particles, and a track of large particles.

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PUTREMKO, O. I. et al, Zhurnal Prikladnoy Spektroskopii, Vol 15, No 4, Oct 71, pp 596-604

When the beam first impinges on the sample, a vapor phase predominates (from 200 to 300 microsec). Following this, particles of condensed phase predominate. By rotating the face of the sample rapidly to a  $45^\circ$  angle toward or away from the spin axis of the disk, the vapor spot deposit is shifted accordingly on the disk and the duration of the vapor phase period is prolonged.

Some features of the formation of the erosion print on the sample and ejection of material under the action of the laser pulse were studied. It is shown that a quasistationary mode of print formation is reached when the erosion products begin to erupt in condensed phase. The time and space distribution of the ejecta can be used to selectively separate the erosion products into phases. Recommendations are made for optimizing the production of the gas phase.

Orig. art. has 2 figs. and 7 refs.

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- 115 -

1/2 016

UNCLASSIFIED

PROCESSING DATE--20NOV70

TITLE--THE TREATMENT OF EARLY CARDIAC INSUFFICIENCY IN HYPERTENSIVE  
VASCULAR DISEASE -U-

AUTHOR--1021-YANOVSKIY, G.V., ZHADAN, I.N.

COUNTRY OF INFO--USSR

SOURCE--KLINICHESKAYA MEDITSINA, 1970, VOL 48, NR 4, PP 104-108

DATE PUBLISHED--70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--HYPERTENSION, CORONARY BLOOD CIRCULATION, CARDIOVASCULAR DRUG

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRA--3004/0744

STEP NO--UR/0497/70/048/004/0104/0108

CIRC ACCESSION NO--AP0131339

UNCLASSIFIED

2/2 016

UNCLASSIFIED

PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0131339

ABSTRACT/EXTRACT--(U) CP-C- ABSTRACT. IN ORDER TO ASCERTAIN WHETHER EFFECTIVE HYPOTENSIVE THERAPY IS CONDUCTIVE TO THE ELIMINATION OF EARLY CARDIAC INSUFFICIENCY IN HYPERTENSIVE VASCULAR DISEASE IN 67 PATIENTS WITH THE SECOND AND THIRD STAGE OF THE AFFECTION THE AUTHORS STUDIED THE DYNAMICS OF ESOPHAGOATRIUM AND PHASE INDICES OF THE LEFT VENTRICLE SYSTOLE. IT WAS ESTABLISHED THAT REDUCTION OF THE ARTERIAL PRESSURE IS ACCOMPANIED BY NORMALIZATION OF THE MYOCARDIAL CONTRACTILE FUNCTION ONLY IN PATIENTS WITH A NONPERSISTENT RISE OF THE ARTERIAL PRESSURE. IN PATIENTS WITH THE II B AND III A STAGES PROTRACTEDLY RECEIVING RELATIVELY LARGE DOSES OF ISOBARINE, NOTWITHSTANDING THE OBVIOUS DECLINE OF THE ARTERIAL PRESSURE, SIGNS OF LATENT CARDIAC INSUFFICIENCY REMAIN OR EVEN INTENSIFY. FOR THEIR ELIMINATION IT IS EXPEDIENT TO ADMINISTER ADDITIONALLY SMALL DOSES OF ISOLANIDE OF DIGOXINE. FACILITY: KIEV, N-1 INSTITUT KLINICHESKOY MEDITSINY IM. N. D. STRAZHESKO.

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